

NCL-19-7399

011340



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

Deviation

SWA6A-3
Job Sheet 198420



Part No: SWA6A-3

Job Qty: 1 pcs

Part Name: Electric Swivel 6,000 lb Safe Work Load (2,721 Kg)



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 7/29/19

Job Tracking No:

Due Date: 8/8/19

Created By: Jennifer Renwick

Type: SOLD

Description: Order 7302

Note: DWG SWA6A Rev. E IPP Rev. A 18.05.14 new issue DP Verify DD/IPP Rev.B 19.02.27 drawing revision DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	External Load - 1	1 pcs	8/8/19		0.00	1.00	External Load - 1		Muhl 2019-8-12
							External Load - 2		
							External Load - 3		
110	External Load - 2 - B4B	1 pcs	8/8/19		0.00	2.00	External Load - 1 - B4B		AP 2019/08/26 Muhl 2019-8-14
							External Load - 2 - B4B		
							External Load - 3 - B4B		
120	QC 5	1 pcs	8/8/19		0.00	0.00	QC 5 - 10		SMB 19/8/27
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		
							QC 5 - 9		
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
							QC 5 - 61		
							QC 5 - 81		
130	Packaging 3-1 - Stock - B4B	1 pcs	8/8/19		0.00	0.00	Packaging 3 - 1 - B4B		
							Packaging 3 - 2 - B4B		
							Packaging 3 - 3 - B4B		
							Packaging 3 - 4 - B4B		
							Packaging 3 - 5 - B4B		



1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S205519



Part: SWA6A-3

Job No: 198420

Serial No/Batch: S205519

Revision: E

Inspector:

Exp Date:

Instructions:

Date: 08/14/19

Plex 7/29/19 8:21 AM Dart.Renwick.Jennifer

Part Op **100** - Issue S/N.
 Descriptions: **110** - Sheet 1 ***All assembly to be done in accordance with SWA swivel manual*** Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG. Laser engrave dart logo as per DWG. Small Fab-6 (Small Fab) - Assemble as per DWG. Sheet 1 ***All assembly to be done in accordance with SWA swivel manual*** Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG. Laser engrave dart logo as per DWG.
120 - (QC5- Inspect part completeness to step on W/O) Engrave T/N And / or S/N number as required Using Marktronic engraver as per DWG.
130 - Packaging3 (Identify as per dwg & Stock Location: _____) Bag and tag
135 - DC (Document Control) Photocopy blue file OM & OOPM-SWA6A RevG
140 - (QC21- Final Inspection - Work Order Release)

GA-ALAIN

Aeroshell grease No. 7 (5138964)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
188-FPSS-1032-1/2	Set Screw	1 Ea (1 ea)	100-External Load - 1	5037670
01121-734A5	3 Conductor 14 AWG,	6 ft (6 ea)	110-External Load - 2 - B4B	5177416
188-FSCS-1032-5/8	Flat socket cap Screw	4 Ea (4 ea)	110-External Load - 2 - B4B	5199362
C45-15-13	Bushing for SWA6A	1 Ea (1 ea)	110-External Load - 2 - B4B	5192687
D2728-1	Dart Logo Label Small	1 pcs (1 ea)	110-External Load - 2 - B4B	M139013
EL-PLUG-F	3-Prong Female Spade Plug	1 Ea (1 ea)	110-External Load - 2 - B4B	5192571
EL-PLUG-M	3-Prong Male Spade Plug	1 Ea (1 ea)	110-External Load - 2 - B4B	5192574
SWA6A-100	Lower End	1 pcs (1 ea)	110-External Load - 2 - B4B	5190922
SWA6A-1100	Upper Bearing	1 pcs (1 ea)	110-External Load - 2 - B4B	5193969
SWA6A-1200	Lower DU Bearing	1 Ea (1 ea)	110-External Load - 2 - B4B	5196405
SWA6A-1300	Lower Thrust Bearing	1 Ea (1 ea)	110-External Load - 2 - B4B	5196384
SWA6A-1400	Circlip Internal	1 Ea (1 ea)	110-External Load - 2 - B4B	5156233
SWA6A-1800	Cover	1 pcs (1 ea)	110-External Load - 2 - B4B	5159099
SWA6A-1900	1/4" Female Spade Connector	6 Ea (6 ea)	110-External Load - 2 - B4B	5192706
SWA6A-200	Upper End	1 pcs (1 ea)	110-External Load - 2 - B4B	5159506
SWA6A-300	Bearing Housing	1 pcs (1 ea)	110-External Load - 2 - B4B	5192339
SWA6A-400	Thrust Washer	1 pcs (1 ea)	110-External Load - 2 - B4B	5194935
SWA6A-500	Semi Rings	1 pcs (1 ea)	110-External Load - 2 - B4B	5172010
SWA6A-600	Collar	1 pcs (1 ea)	110-External Load - 2 - B4B	5190894
SWA6A-700B	Wire Clamp, 1/2 X 1-3/8 X 1-1/4	2 pcs (2 ea)	110-External Load - 2 - B4B	5191796
SWA6A-800B	Connector Bushing	1 pcs (1 ea)	110-External Load - 2 - B4B	5194169
SWA6A-900B	Rotary Connector - 3 wire	1 Ea (1 ea)	110-External Load - 2 - B4B	5197603

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-External Load - 1	188-FPSS-1032-1/2	1	47	0
110-External Load - 2 - B4B	01121-734A5	6	249	0
	188-FSCS-1032-5/8	4	164	0
	C45-15-13	1	15	0
	D2728-1	1	0	0
	EL-PLUG-F	1	25	0
	EL-PLUG-M	1	39	0
	SWA6A-100	1	19	0
	SWA6A-1100	1	16	0
	SWA6A-1200	1	27	0
	SWA6A-1300	1	20	0
	SWA6A-1400	1	37	0
	SWA6A-1800	1	17	0
	SWA6A-1900	6	166	0
	SWA6A-200	1	20	0
	SWA6A-300	1	20	0
	SWA6A-400	1	37	0
	SWA6A-500	1	20	0
	SWA6A-600	1	17	0
	SWA6A-700B	2	77	0
	SWA6A-800B	1	36	0
	SWA6A-900B	1	13	0

Part Specifications

Specifications could not be found.

Work Order 198420

Customer Order 7302

Number of Wires 3

Date 2019-8-14

Serial Number 5205519

Number of Cycles	Load (Lbs.)	Action	Pass/Fail
1	6,000	Check for Conductivity against all wires.	- Pass
1	6,000	Check all wires for grounding against swivel body.	- Pass
1	3,000	Check for Conductivity against all wires.	- Pass
1	3,000	Check all wires for grounding against swivel body.	- Pass
1	1,500	Check for Conductivity against all wires.	- Pass
1	1,500	Check all wires for grounding against swivel body.	- Pass
1	0	Check for Conductivity against all wires.	- Pass
1	0	Check all wires for grounding against swivel body.	- Pass

Test Conducted By: Michel Lelonde
Technician

Signature: Sylvain Boyer
QC 5 Small FAB / QA





Electric Swivel
SWA6A

Work Order 198420

Customer Order 7302

Number of Wires 3

Date 2019-8-14

Serial Number 5205519

Number of Cycles	Load (Lbs.)	Action	Pass/Fail
1	6,000	Check for Conductivity against all wires.	- Pass
1	6,000	Check all wires for grounding against swivel body.	- Pass
1	3,000	Check for Conductivity against all wires.	- Pass
1	3,000	Check all wires for grounding against swivel body.	- Pass
1	1,500	Check for Conductivity against all wires.	- Pass
1	1,500	Check all wires for grounding against swivel body.	- Pass
1	0	Check for Conductivity against all wires.	- Pass
1	0	Check all wires for grounding against swivel body.	- Pass

Test Conducted By: Michel Lalonde
Technician

Signature: Sylvain Boyer
QC 5 Small FAB / QA



DQA:

Date:

7E Oct 7/19

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed:

19-7399

Date:

Work Order update only ☐

Work Order: <u>198420</u> Part No. <u>SWA### Swivels</u> NCR No. _____		DISPOSITION Rework ☒ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%;"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☒</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☒	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☒																																																																				
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																																																																				
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																																																																				
Large Fab ☐	Composite ☐	Supplier ☐																																																																					
Date: <u>2019/08/26</u>		Step #: <u>110</u>		QTY Effective: <u>①</u>		MRB (QS1042) Approval <u>M Lee</u> Feb 01, 2018																																																																	
Description Work Order Deviation - Use a combination of heatshrink tubing and RTV Silicone to create a watertight seal around all electrical connections. - Use a D2728-1 Placard in place of the laser engraved Dart logo				Disposition These deviations are acceptable to carry out on the following swivels: - SWA3 - SWA6A - SWA10A - SWA15A - SWA25A - PSWA25A - HH40-Q280002 <u>M Lee</u> There is no impact on fit, form or function.				Completed By <u>A. PATRY</u> Lead hand / Supervisor Approval Verification DAS 9 9-89 <u>20-01-03</u>																																																															
				QC / QA Coordinator Approval DAS 9 9-89 <u>20-01-03</u>																																																																			
Root Cause <table style="width:100%;"> <tr> <td>Environment ☐</td> <td>No Re-verification ☐</td> </tr> <tr> <td>Design ☒</td> <td>Operator ☐</td> </tr> <tr> <td>Doc/Data ☐</td> <td>Offset/Setup ☐</td> </tr> <tr> <td>Equip/Tooling ☐</td> <td>Supplier ☐</td> </tr> <tr> <td>Handling/Pre ☐</td> <td>Training ☐</td> </tr> <tr> <td>Material ☐</td> <td>Use for Testing ☐</td> </tr> <tr> <td>Internal Transport ☐</td> <td>Poor Information ☐</td> </tr> <tr> <td>Tribal Knowledge ☐</td> <td>Rushing ☐</td> </tr> <tr> <td>LOA ☐</td> <td>Product Improvement ☒</td> </tr> <tr> <td>Substation ☐</td> <td>Process Improvement ☒</td> </tr> <tr> <td>Past Expiry Date ☐</td> <td>Manufacturing Process ☐</td> </tr> <tr> <td>Misidentified ☐</td> <td>Past Due ☐</td> </tr> </table>				Environment ☐	No Re-verification ☐	Design ☒	Operator ☐	Doc/Data ☐	Offset/Setup ☐	Equip/Tooling ☐	Supplier ☐	Handling/Pre ☐	Training ☐	Material ☐	Use for Testing ☐	Internal Transport ☐	Poor Information ☐	Tribal Knowledge ☐	Rushing ☐	LOA ☐	Product Improvement ☒	Substation ☐	Process Improvement ☒	Past Expiry Date ☐	Manufacturing Process ☐	Misidentified ☐	Past Due ☐	FAULT CATEGORY <table style="width:100%;"> <tr> <td>Pressure/Forced ☐</td> <td>Temperature/Cure ☐</td> <td>Power Loss/Surge ☐</td> <td>Positioned Wrong ☐</td> </tr> <tr> <td>Bending ☐</td> <td>Set-up ☐</td> <td>Folio/Program ☐</td> <td>Outside Dimensions ☐</td> </tr> <tr> <td>Centre Not Concentric ☐</td> <td>BOM/Route ☐</td> <td>Grain ☐</td> <td>Over/Under tolerance ☐</td> </tr> <tr> <td>Cracks ☐</td> <td>Broken/Damage/Defect ☐</td> <td>Weld ☐</td> <td>Part Incorrect ☐</td> </tr> <tr> <td>Crimp/Kink/Ripple/Wave ☐</td> <td>Inspection Incomplete/Unqualified ☐</td> <td>Wrong Stock Pulled ☐</td> <td>Part Lost/Missing ☐</td> </tr> <tr> <td>Cuffs ☐</td> <td>Contamination ☐</td> <td>Out of Sequence ☐</td> <td>Part Moved ☐</td> </tr> <tr> <td>Crushing ☐</td> <td>Countersink ☐</td> <td>Off-set ☐</td> <td>☒ Drawing</td> </tr> <tr> <td>Heat Treat ☐</td> <td>Cut Too Short ☐</td> <td>Mislabeled ☐</td> <td>Finish ☐</td> </tr> <tr> <td>Wave/Twist in Tube ☐</td> <td>Instructions Incomplete/Unclear ☐</td> <td>Fit/Function ☐</td> <td>Misread ☐</td> </tr> <tr> <td>Marks/Chatter ☐</td> <td>Drill Holes ☐</td> <td>Misaligned/off center ☐</td> <td>Turning Sequence ☐</td> </tr> </table>				Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Crushing ☐	Countersink ☐	Off-set ☐	☒ Drawing	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Environment ☐	No Re-verification ☐																																																																						
Design ☒	Operator ☐																																																																						
Doc/Data ☐	Offset/Setup ☐																																																																						
Equip/Tooling ☐	Supplier ☐																																																																						
Handling/Pre ☐	Training ☐																																																																						
Material ☐	Use for Testing ☐																																																																						
Internal Transport ☐	Poor Information ☐																																																																						
Tribal Knowledge ☐	Rushing ☐																																																																						
LOA ☐	Product Improvement ☒																																																																						
Substation ☐	Process Improvement ☒																																																																						
Past Expiry Date ☐	Manufacturing Process ☐																																																																						
Misidentified ☐	Past Due ☐																																																																						
Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐																																																																				
Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐																																																																				
Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐																																																																				
Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐																																																																				
Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐																																																																				
Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐																																																																				
Crushing ☐	Countersink ☐	Off-set ☐	☒ Drawing																																																																				
Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐																																																																				
Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐																																																																				
Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐																																																																				
OTHER :																																																																							

Entered:

76

Date:

05/11/19

NCR No.

198422

19-7899

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only

Job: 198419

Part No. C series hooks and SWA Swivels

DISPOSITION

Rework ☒
Scrap ☐
Use-as-is ☐

DEPARTMENT/PROCESS

Skid-tube ☐
Machining ☐
Large Fab ☐
Cross tube ☐
Small Fab ☐
Finishing ☐
Eng. (Non-AW) ☒
Prod. Eng. Coord. ☐
Rec/Store/Packaging ☐

Engineering ☐
Water Jet ☐
Supplier ☐
Quality ☐

Date: 19.11.01

Sequence #: 100

QTY Affected: 0

Description Work Order Deviation

Disposition

The electrical wires listed under "Acceptable Alternate Wire" on the attached sheet are acceptable to use in place of the "Drawing Specified Wire"

This deviation is acceptable.

No change to fit form or function.

The job route must specify the wire that is called out on the drawing

The inventory P/N must reflect the same P/N that was received from a vendor

MRB (QS1042)

May, 9 2019

Completed By

NOV 12

Lead hand / Supervisor

DAS 30 NOV 12 2019

QC / QA Coordinator

DAS 9 20-01-03

Root Cause

Operator ☐
Manufacturing Process ☐
Equip/Tooling ☐
Handling/Preservation ☐
Material ☐
Product Improvement ☒
Process Improvement ☐
Human Factors ☐

FAULT CATEGORY

Pressure/Forced ☐
Bending ☐
Crushing ☐
Cracks ☐
Crimp/Kink/Ripple/Wave/Twist ☐
Marks/Chatter ☐
Mislabeled ☐
Contamination ☐
Misaligned/off center ☐
BOM/Route ☐
Broken/Damage/Defect ☐
Incomplete/Unclear Instructions ☐
Drill Holes ☐
Fit/Function ☐
Power Loss/Surge ☐
Folio/Program ☐
Grain Direction ☐
Weld ☐
Wrong Stock Pulled ☐
Out of Sequence ☐
Off-set/Set-up ☐

Positioned Wrong ☐
Outside Tolerance ☐
Drawing ☒
Finish ☐
Part Lost/Missing ☐
Misread ☐

P/N	Revision	Drawing Specified Wire	Acceptable Alternate Wire
C2	2	MIL-C-27500 11-14416	N/A
C3	2	MIL-C-27500 11-14417	N/A
C10	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C15	2	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C20	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C45	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C60	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
C250	C	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA3-2	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA3-3	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA3-4	3	EL 414-ARTIC 4/14	Texcan 01121-744A5
SWA6A-2	E	Texcan 01121-724AM	N/A
SWA6A-3	E	Texcan 01121-734A5 or 01004-08-047	N/A
SWA6A-4	E	Texcan 01121-744A5	N/A
SWA6A-6	E	Texcan 04121-764A5	N/A
SWA6A-8	E	Texcan 12701-08-014 or McMaster 7081K38	N/A
SWA10A-2	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA10A-3	3	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA10A-4	3	EL 414-ARTIC 4/14	Texcan 01121-744A5
SWA10A-6	3	EL 616-ARTIC	Texcan 04121-764A5
SWA10A-8	3	Polar Wire 30806	Texcan 12701-08-014 or McMaster 7081K38
SWA15A-2	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA15A-3	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SWA15A-4	1	EL 414-ARTIC 4/14	Texcan 01121-744A5
SWA15A-6	1	EL 616-ARTIC	Texcan 04121-764A5
SWA15A-8	1	EL 816-ARTIC	Texcan 12701-08-014 or McMaster 7081K38
SAW25A-2	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SAW25A-3	1	3/14 SJTOW	Texcan 01121-734A5 or 01004-08-047
SAW25A-4	1	EL 414-ARTIC 4/14	Texcan 01121-744A5
SAW25A-6	1	EL 616-ARTIC	Texcan 04121-764A5
SAW25A-8	1	EL 816-ARTIC	Texcan 12701-08-014 or McMaster 7081K38